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IS 7876 (1975): Gauge allowances and manufacturing tolerances for plain gauges for outside measurements for ISO fit sizes (nominal size up to 500 mm) [PGD 25: Engineering Metrology]

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Indian Standard

**GAUGE ALLOWANCES AND MANUFACTURING
TOLERANCES FOR PLAIN GAUGES FOR OUTSIDE
MEASUREMENTS FOR ISO FIT SIZES
(NOMINAL SIZE UP TO 500 mm)**

1. Scope — Lays down the gauge allowances and manufacturing tolerances for plain snap gauges, ring gauges and reference discs for gap gauges for outside measurements (shafts) for ISO fit sizes up to 500 mm nominal size.

2. Symbols — Following symbols are used in this standard (see also Fig. 1):

Agn = Gauge allowance for GO member, new;

Ang = Gauge allowance for NO GO member;

Agw = Wear allowance for GO member, worn out;

y_1 = Margin, outside the GO workpiece limit, of the wear limit of gauges for shafts;

Note — For grades 9 and above, $y_1 = 0$.

z_1 = Distance between the centre of tolerance zone of new GO gauges for shafts and GO workpiece limit;

Note — For values of y_1 and z_1 , see Table 3 of IS : 3455-1971 'Gauging practice for plain workpieces (first revision)'.

α_1 = Safety zone provided for compensating measuring uncertainties of gauges for shafts of nominal diameter above 180 mm;

H_1 = Tolerance on gauges for shafts (other than reference discs for gap gauges);

H_p = Tolerance on reference discs for gap gauges;

N = Nominal size of the workpiece;

T = Tolerance of the workpiece;

G = Upper deviation of the workpiece; and

K = Lower deviation of the workpiece.

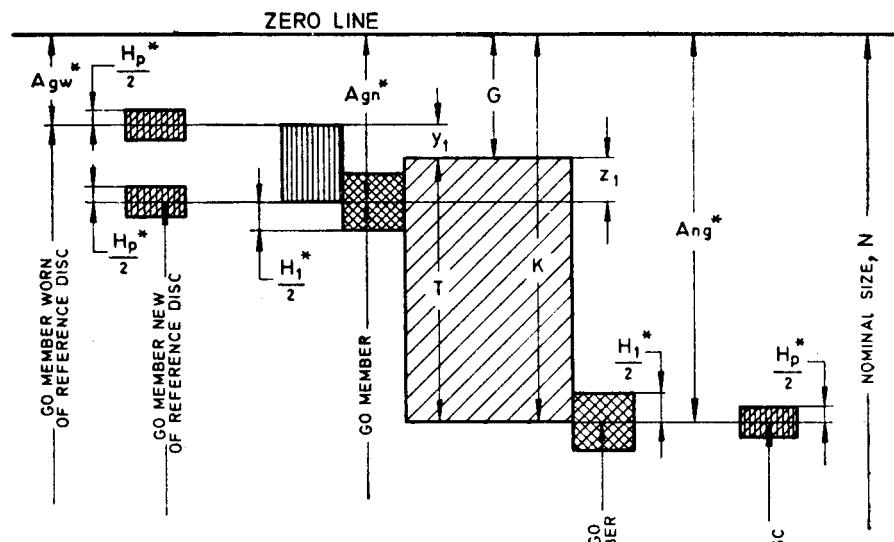
3. Formulae for Determining Gauge Dimensions

Gauge Member	Formulae	Examples for Calculation		
		Snap Gauges and Ring Gauges		Reference Disc for Gap Gauges
		25 e8	100 h9	
GO member, new	$(N+Agn) \pm \frac{H_1}{2}^*$	$(25-0.045) \pm 0.003$ $= 24.955 \pm 0.003$	$(100-0.015) \pm 0.005$ $= 99.985 \pm 0.005$	$(200+0.099) \pm 0.002 25$ $= 200.099 \pm 0.002 25$
NO GO member	$(N+Ang) \pm \frac{H_1}{2}^*$	$(25-0.073) \pm 0.003$ $= 24.927 \pm 0.003$	$(100-0.087) \pm 0.005$ $= 99.913 \pm 0.005$	$(200+0.079) \pm 0.002 25$ $= 200.079 \pm 0.002 25$
GO member, worn out	$N+Agw$	$25-0.036$ $= 24.964$	$100-0$ $= 100$	$200+0.109$ $= 200.109$

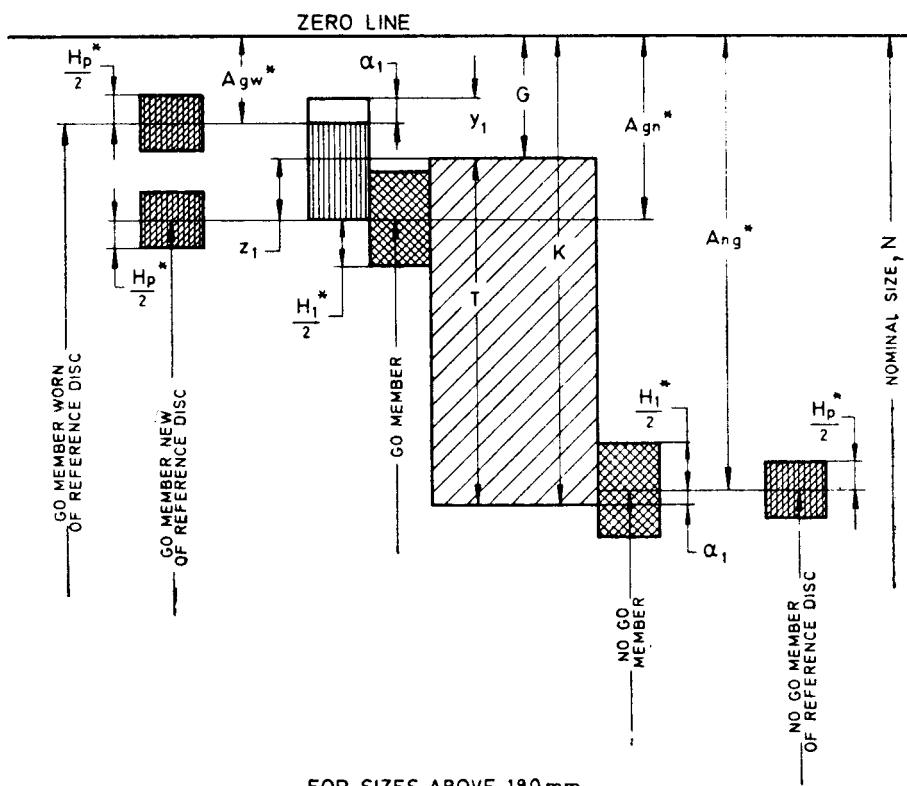
* $\frac{H_p}{2}$ should be substituted for $\frac{H_1}{2}$ in the formulae for reference discs for gap gauges.

4. Disposition of Tolerance for Snap Gauges, Ring Gauges and Reference Discs for Gap Gauges — Figure 1 shows the disposition of tolerance for the snap gauges, ring gauges and reference discs for gap gauges with relation to workpiece tolerance.

5. Calculated Values — Calculated values (in μm) of the gauge allowances for snap gauges, ring gauges and reference discs for gap gauges for a few selected ISO-tolerance zones are given in Table 1 under A.



FOR SIZES UP TO 180 mm



FOR SIZES ABOVE 180 mm

*For values in μm , see Table 1.

FIG. 1 DISPOSITION OF TOLERANCES

TABLE 1 GAUGE ALLOWANCES AND MANUFACTURING TOLERANCES FOR OUTSIDE MEASUREMENTS

(Clause 5)

All values in μm .

NOMINAL SIZE mm		GAUGE	TOLERANCE CLASS								
			OVER			a11			b11		
						A	$\pm \frac{H_1}{2}$	$\pm \frac{H_2}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_2}{2}$
—	3	Agw Agn Ang	— 270 — 280 — 330	—	2	0.6	— 140 — 150 — 200	—	2	0.6	— 80 — 70 — 120
3	6	Agw Agn Ang	— 270 — 282 — 345	—	2.5 2.5	0.75	— 140 — 152 — 215	—	2.5 2.5	0.75	— 70 — 82 — 145
6	10	Agw Agn Ang	— 280 — 294 — 370	—	3 3	0.75	— 150 — 164 — 240	—	3 3	0.75	— 80 — 94 — 170
10	18	Agw Agn Ang	— 290 — 306 — 400	—	4 4	1	— 150 — 166 — 260	—	4 4	1	— 95 — 111 — 205
18	30	Agw Agn Ang	— 300 — 319 — 430	—	4.5 4.5	1.25	— 160 — 179 — 290	—	4.5 4.5	1.25	— 110 — 129 — 240
30	40	Agw Agn Ang	— 310 — 332 — 470	—	5.5 5.5	1.25	— 170 — 192 — 330	—	5.5 5.5	1.25	— 120 — 142 — 280
40	50	Agw Agn Ang	— 320 — 342 — 480	—	5.5 5.5	1.25	— 180 — 202 — 340	—	5.5 5.5	1.25	— 130 — 152 — 290
50	65	Agw Agn Ang	— 340 — 365 — 530	—	6.5 6.5	1.5	— 190 — 215 — 380	—	6.5 6.5	1.5	— 140 — 165 — 330
65	80	Agw Agn Ang	— 360 — 385 — 550	—	6.5 6.5	1.5	— 200 — 225 — 390	—	6.5 6.5	1.5	— 150 — 175 — 340
80	100	Agw Agn Ang	— 380 — 408 — 600	—	7.5 7.5	2	— 220 — 248 — 440	—	7.5 7.5	2	— 170 — 198 — 390
100	120	Agw Agn Ang	— 410 — 438 — 630	—	7.5 7.5	2	— 240 — 268 — 460	—	7.5 7.5	2	— 180 — 208 — 400
120	140	Agw Agn Ang	— 460 — 492 — 710	—	9 9	2.5	— 260 — 292 — 510	—	9 9	2.5	— 200 — 232 — 450
140	160	Agw Agn Ang	— 520 — 552 — 770	—	9 9	2.5	— 280 — 312 — 530	—	9 9	2.5	— 210 — 242 — 460
160	180	Agw Agn Ang	— 580 — 612 — 830	—	9 9	2.5	— 310 — 342 — 560	—	9 9	2.5	— 230 — 262 — 480
180	200	Agw Agn Ang	— 670 — 700 — 940	—	10 10	3.5	— 350 — 380 — 620	—	10 10	3.5	— 250 — 280 — 520
200	225	Agw Agn Ang	— 750 — 780 — 1020	—	10 10	3.5	— 390 — 420 — 660	—	10 10	3.5	— 270 — 300 — 540
225	250	Agw Agn Ang	— 830 — 860 — 1100	—	10 10	3.5	— 430 — 460 — 700	—	10 10	3.5	— 290 — 320 — 560
250	280	Agw Agn Ang	— 935 — 965 — 1225	—	11.5 11.5	4	— 495 — 525 — 785	—	11.5 11.5	4	— 315 — 345 — 605
280	315	Agw Agn Ang	— 1065 — 1095 — 1355	—	11.5 11.5	4	— 555 — 585 — 845	—	11.5 11.5	4	— 345 — 375 — 635
315	355	Agw Agn Ang	— 1215 — 1250 — 1545	—	12.5 12.5	4.5	— 615 — 650 — 945	—	12.5 12.5	4.5	— 375 — 410 — 705
355	400	Agw Agn Ang	— 1365 — 1400 — 1695	—	12.5 12.5	4.5	— 695 — 730 — 1025	—	12.5 12.5	4.5	— 415 — 450 — 745
400	450	Agw Agn Ang	— 1520 — 1555 — 1880	—	13.5 13.5	5	— 780 — 815 — 1140	—	13.5 13.5	5	— 460 — 495 — 820
450	500	Agw Agn Ang	— 1670 — 1705 — 2030	—	13.5 13.5	5	— 860 — 895 — 1220	—	13.5 13.5	5	— 500 — 535 — 860

(Continued)

TABLE 1 GAUGE ALLOWANCES AND MANUFACTURING TOLERANCES FOR OUTSIDE MEASUREMENTS — *Contd*

NOMINAL SIZE mm		GAUGE	TOLERANCE CLASS								
			d8			d9			d10		
OVER	UP TO AND INCLUDING		A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$
—	3	A _{gw}	— 17	—		— 20	—		— 20	—	
		A _{gn}	— 22	1.5	0.6	— 25	1.5	0.6	— 25	1.5	0.6
		A _{ng}	— 34	1.5		— 45	1.5		— 60	1.5	
3	6	A _{gw}	— 27	—		— 30	—		— 30	—	
		A _{gn}	— 33	2	0.75	— 36	2	0.75	— 36	2	0.75
		A _{ng}	— 48	2		— 60	2		— 78	2	
6	10	A _{gw}	— 37	—		— 40	—		— 40	—	
		A _{gn}	— 43	2	0.75	— 47	2	0.75	— 47	2	0.75
		A _{ng}	— 62	2		— 76	2		— 98	2	
10	18	A _{gw}	— 46	—		— 50	—		— 50	—	
		A _{gn}	— 54	2.5	1	— 58	2.5	1	— 58	2.5	1
		A _{ng}	— 77	2.5		— 93	2.5		— 120	2.5	
18	30	A _{gw}	— 61	—		— 65	—		— 65	—	
		A _{gn}	— 70	3	1.25	— 74	3	1.25	— 74	3	1.25
		A _{ng}	— 98	3		— 117	3		— 149	3	
30	50	A _{gw}	— 75	—		— 80	—		— 80	—	
		A _{gn}	— 86	3.5	1.25	— 91	3.5	1.25	— 91	3.5	1.25
		A _{ng}	— 119	3.5		— 142	3.5		— 180	3.5	
50	80	A _{gw}	— 95	—		— 100	—		— 100	—	
		A _{gn}	— 107	4	1.5	— 113	4	1.5	— 113	4	1.5
		A _{ng}	— 146	4		— 174	4		— 220	4	
80	120	A _{gw}	— 114	—		— 120	—		— 120	—	
		A _{gn}	— 128	5	2	— 135	5	2	— 135	5	2
		A _{ng}	— 174	5		— 207	5		— 260	5	
120	180	A _{gw}	— 139	—		— 145	—		— 145	—	
		A _{gn}	— 154	6	2.5	— 163	6	2.5	— 163	6	2.5
		A _{ng}	— 208	6		— 245	6		— 305	6	
180	250	A _{gw}	— 167	—		— 174	—		— 177	—	
		A _{gn}	— 182	7	3.5	— 191	7	3.5	— 194	7	3.5
		A _{ng}	— 238	7		— 281	7		— 348	7	
250	315	A _{gw}	— 187	—		— 196	—		— 199	—	
		A _{gn}	— 204	8	4	— 214	8	4	— 217	8	4
		A _{ng}	— 265	8		— 314	8		— 391	8	
315	400	A _{gw}	— 208	—		— 217	—		— 221	—	
		A _{gn}	— 226	9	4.5	— 238	9	4.5	— 242	9	4.5
		A _{ng}	— 292	9		— 343	9		— 429	9	
400	500	A _{gw}	— 228	—		— 239	—		— 244	—	
		A _{gn}	— 248	10	5	— 262	10	5	— 267	10	5
		A _{ng}	— 318	10		— 376	10		— 466	10	

(Continued)

TABLE 1 GAUGE ALLOWANCES AND MANUFACTURING TOLERANCES FOR OUTSIDE MEASUREMENTS — *Contd*

NOMINAL SIZE mm		GAUGE	TOLERANCE CLASS								
			e7			e8			e9		
			A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$
—	3	Agw	-12.5	—		-11	—		-14	—	
		Agn	-15.5	1	0.4	-16	1.5	0.6	-19	1.5	0.6
		Ang	-24	1		-28	1.5		-39	1.5	
3	6	Agw	-18.5	—		-17	—		-20	—	
		Agn	-22	1.25	0.5	-23	2	0.75	-26	2	0.75
		Ang	-32	1.25		-38	2		-50	2	
6	10	Agw	-23.5	—		-22	—		-25	—	
		Agn	-27	1.25	0.5	-28	2	0.75	-32	2	0.75
		Ang	-40	1.25		-47	2		-61	2	
10	18	Agw	-30	—		-28	—		-32	—	
		Agn	-34.5	1.5	0.6	-36	2.5	1	-40	2.5	1
		Ang	-50	1.5		-59	2.5		-75	2.5	
18	30	Agw	-37	—		-36	—		-40	—	
		Agn	-43	2	0.75	-45	3	1.25	-49	3	1.25
		Ang	-61	2		-73	3		-92	3	
30	50	Agw	-47	—		-45	—		-50	—	
		Agn	-53.5	2	0.75	-56	3.5	1.25	-61	3.5	1.25
		Ang	-75	2		-89	3.5		-112	3.5	
50	80	Agw	-57	—		-55	—		-60	—	
		Agn	-64	2.5	1	-67	4	1.5	-73	4	1.5
		Ang	-90	2.5		-106	4		-134	4	
80	120	Agw	-68	—		-66	—		-72	—	
		Agn	-77	3	1.25	-80	5	2	-87	5	2
		Ang	-107	3		-126	5		-159	5	
120	180	Agw	-81	—		-79	—		-85	—	
		Agn	-91	4	1.75	-94	6	2.5	-103	6	2.5
		Ang	-125	4		-148	6		-185	6	
180	250	Agw	-97	—		-97	—		-104	—	
		Agn	-107	5	2.25	-112	7	3.5	-121	7	3.5
		Ang	-143	5		-168	7		-211	7	
250	315	Agw	-107	—		-107	—		-116	—	
		Agn	-118	6	3	-124	8	4	-134	8	4
		Ang	-158	6		-185	8		-234	8	
315	400	Agw	-123	—		-123	—		-132	—	
		Agn	-135	6.5	3.5	-141	9	4.5	-153	9	4.5
		Ang	-176	6.5		-207	9		-258	9	
400	500	Agw	-133	—		-133	—		-144	—	
		Agn	-146	7.5	4	-153	10	5	-167	10	5
		Ang	-191	7.5		-223	10		-281	10	

(Continued)

TABLE 1 GAUGE ALLOWANCES AND MANUFACTURING TOLERANCES FOR OUTSIDE MEASUREMENTS — *Contd*

NOMINAL SIZE mm		GAUGE	TOLERANCE CLASS								
			f6			f7			f8		
			A	$\frac{+H_1}{2}$	$\frac{+H_P}{2}$	A	$\frac{+H_1}{2}$	$\frac{+H_P}{2}$	A	$\frac{+H_1}{2}$	$\frac{+H_P}{2}$
—	3	Agw Agn Ang	— 4.5 — 7.5 — 12	— 1 1	0.4	— 4.5 — 7.5 — 16	— 1 1	0.4	— 3 — 8 — 20	— 1.5 1.5	0.6
3	6	Agw Agn Ang	— 8.5 — 12 — 18	— 1.25 1.25	0.5	— 8.5 — 12 — 22	— 1.25 1.25	0.5	— 7 — 13 — 28	— 2 2	0.75
6	10	Agw Agn Ang	— 11.5 — 15 — 22	— 1.25 1.25	0.5	— 11.5 — 15 — 28	— 1.25 1.25	0.5	— 10 — 16 — 35	— 2 2	0.75
10	18	Agw Agn Ang	— 14 — 18.5 — 27	— 1.5 1.5	0.6	— 14 — 18.5 — 34	— 1.5 1.5	0.6	— 12 — 20 — 43	— 2.5 2.5	1
18	30	Agw Agn Ang	— 17 — 23 — 33	— 2 2	0.75	— 17 — 23 — 41	— 2 2	0.75	— 16 — 25 — 53	— 3 3	1.25
30	50	Agw Agn Ang	— 22 — 28.5 — 41	— 2 2	0.75	— 22 — 28.5 — 50	— 2 2	0.75	— 20 — 31 — 64	— 3.5 3.5	1.25
50	80	Agw Agn Ang	— 27 — 34 — 49	— 2.5 2.5	1	— 27 — 34 — 60	— 2.5 2.5	1	— 25 — 37 — 75	— 4 4	1.5
80	120	Agw Agn Ang	— 32 — 41 — 58	— 3 3	1.25	— 32 — 41 — 71	— 3 3	1.25	— 30 — 44 — 90	— 5 5	2
120	180	Agw Agn Ang	— 39 — 49 — 68	— 4 4	1.75	— 39 — 49 — 83	— 4 4	1.75	— 37 — 52 — 106	— 5 6	2.5
180	250	Agw Agn Ang	— 47 — 57 — 77	— 5 5	2.25	— 47 — 57 — 93	— 5 5	2.25	— 47 — 62 — 118	— 7 7	3.5
250	315	Agw Agn Ang	— 53 — 64 — 85	— 6 6	3	— 53 — 64 — 104	— 6 6	3	— 53 — 70 — 131	— 8 8	4
315	400	Agw Agn Ang	— 60 — 72 — 94	— 6.5 6.5	3.5	— 60 — 72 — 113	— 6.5 6.5	3.5	— 60 — 78 — 144	— 9 9	4.5
400	500	Agw Agn Ang	— 66 — 79 — 103	— 7.5 7.5	4	— 66 — 79 — 124	— 7.5 7.5	4	— 66 — 86 — 156	— 10 10	5

(Continued)

TABLE 1 GAUGE ALLOWANCES AND MANUFACTURING TOLERANCES FOR OUTSIDE MEASUREMENTS — *Contd*

NOMINAL SIZE mm		GAUGE	TOLERANCE CLASS					
			95			96		
OVER	UP TO AND INCLUDING		A	$\pm \frac{H_1}{2}$	$\pm \frac{H_P}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_P}{2}$
—	3	Agw	— 1	—	—	— 0.5	—	—
		Agn	— 3	0.6	0.4	— 3.5	1	0.4
		Ang	— 6	0.6	—	— 8	1	—
3	6	Agw	— 3	—	—	— 2.5	—	—
		Agn	— 5	0.75	0.5	— 6	1.25	0.5
		Ang	— 9	0.75	—	— 12	1.25	—
6	10	Agw	— 4	—	—	— 3.5	—	—
		Agn	— 6	0.75	0.5	— 7	1.25	0.5
		Ang	— 11	0.75	—	— 14	1.25	—
10	18	Agw	— 4.5	—	—	— 4	—	—
		Agn	— 7.5	1	0.6	— 8.5	1.5	0.6
		Ang	— 14	1	—	— 17	1.5	—
18	30	Agw	— 5	—	—	— 4	—	—
		Agn	— 8.5	1.25	0.75	— 10	2	0.75
		Ang	— 16	1.25	—	— 20	2	—
30	50	Agw	— 7	—	—	— 6	—	—
		Agn	— 11	1.25	0.75	— 12.5	2	0.75
		Ang	— 20	1.25	—	— 25	2	—
50	80	Agw	— 8	—	—	— 7	—	—
		Agn	— 12	1.5	1	— 14	2.5	1
		Ang	— 23	1.5	—	— 29	2.5	—
80	120	Agw	— 9	—	—	— 8	—	—
		Agn	— 14.5	2	1.25	— 17	3	1.25
		Ang	— 27	2	—	— 34	3	—
120	180	Agw	— 11	—	—	— 10	—	—
		Agn	— 17	2.5	1.75	— 20	4	1.75
		Ang	— 32	2.5	—	— 39	4	—
180	250	Agw	— 13	—	—	— 12	—	—
		Agn	— 19	3.5	2.25	— 22	5	2.25
		Ang	— 34	3.5	—	— 42	5	—
250	315	Agw	— 15.5	—	—	— 14	—	—
		Agn	— 22	4	3	— 25	6	3
		Ang	— 38.5	4	—	— 46	6	—
315	400	Agw	— 16.5	—	—	— 16	—	—
		Agn	— 24	4.5	3.5	— 28	6.5	3.5
		Ang	— 40.5	4.5	—	— 50	6.5	—
400	500	Agw	— 19	—	—	— 18	—	—
		Agn	— 27	5	4	— 31	7.5	4
		Ang	— 44	5	—	— 55	7.5	—

(Continued)

TABLE 1 GAUGE ALLOWANCES AND MANUFACTURING TOLERANCES FOR OUTSIDE MEASUREMENTS — *Contd*

NOMINAL SIZE mm		GAUGE	TOLERANCE CLASS								
			h5			h6			h7		
OVER	UP TO AND INCLUDING	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_P}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_P}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_P}{2}$	
—	3	Agw Agn Ang	+ 1 — 1 — 4	— 0.6 0.6	0.4	+ 1.5 — 1.5 — 6	— 1 1	0.4	+ 1.5 — 1.5 — 10	— 1 1	0.4
3	6	Agw Agn Ang	+ 1 — 1 — 5	— 0.75 0.75	0.5	+ 1.5 — 2 — 8	— 1.25 1.25	0.5	+ 1.5 — 2 — 12	— 1.25 1.25	0.5
6	10	Agw Agn Ang	+ 1 — 1 — 6	— 0.75 0.75	0.5	+ 1.5 — 2 — 9	— 1.25 1.25	0.5	+ 1.5 — 2 — 15	— 1.25 1.25	0.5
10	18	Agw Agn Ang	+ 1.5 — 1.5 — 8	— 1 1	0.6	+ 2 — 2.5 — 11	— 1.5 1.5	0.6	+ 2 — 2.5 — 18	— 1.5 1.5	0.6
18	30	Agw Agn Ang	+ 2 — 1.5 — 9	— 1.25 1.25	0.75	+ 3 — 3 — 13	— 2 2	0.75	+ 3 — 3 — 21	— 2 2	0.75
30	50	Agw Agn Ang	+ 2 — 2 — 11	— 1.25 1.25	0.75	+ 3 — 3.5 — 16	— 2 2	0.75	+ 3 — 3.5 — 25	— 2 2	0.75
50	80	Agw Agn Ang	+ 2 — 2 — 13	— 1.5 1.5	1	+ 3 — 4 — 19	— 2.5 2.5	1	+ 3 — 4 — 30	— 2.5 2.5	1
80	120	Agw Agn Ang	+ 3 — 2.5 — 15	— 2 2	1.25	+ 4 — 5 — 22	— 3 3	1.25	+ 4 — 5 — 35	— 3 3	1.25
120	180	Agw Agn Ang	+ 3 — 3 — 18	— 2.5 2.5	1.75	+ 4 — 6 — 25	— 4 4	1.75	+ 4 — 6 — 40	— 4 4	1.75
180	250	Agw Agn Ang	+ 2 — 4 — 19	— 3.5 3.5	2.25	+ 3 — 7 — 27	— 5 5	2.25	+ 3 — 7 — 43	— 5 5	2.25
250	315	Agw Agn Ang	+ 1.5 — 5 — 21.5	— 4 4	3	+ 3 — 8 — 29	— 6 6	3	+ 3 — 8 — 48	— 6 6	3
315	400	Agw Agn Ang	+ 1.5 — 6 — 22.5	— 4.5 4.5	3.5	+ 2 — 10 — 32	— 6.5 6.5	3.5	+ 2 — 10 — 51	— 6.5 6.5	3.5
400	500	Agw Agn Ang	+ 1 — 7 — 24	— 5 5	4	+ 2 — 11 — 35	— 7.5 7.5	4	+ 2 — 11 — 56	— 7.5 7.5	4

(Continued)

TABLE 1 GAUGE ALLOWANCES AND MANUFACTURING TOLERANCES FOR OUTSIDE MEASUREMENTS — *Contd*

NOMINAL SIZE mm		GAUGE	TOLERANCE CLASS								
			h8			h9			h11		
OVER	UP TO AND INCLUDING		A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$
—	3	Agw	+ 3	—		0	—		0	—	
		Agn	— 2	1.5	0.6	— 5	1.5	0.6	— 10	2	0.6
		Ang	— 14	1.5		— 25	1.5		— 60	2	
3	6	Agw	+ 3	—		0	—		0	—	
		Agn	— 3	2	0.75	— 6	2	0.75	— 12	2.5	0.75
		Ang	— 18	2		— 30	2		— 75	2.5	
6	10	Agw	+ 3	—		0	—		0	—	
		Agn	— 3	2	0.75	— 7	2	0.75	— 14	3	0.75
		Ang	— 22	2		— 36	2		— 90	3	
10	18	Agw	+ 4	—		0	—		0	—	
		Agn	— 4	2.5	1	— 8	2.5	1	— 16	4	
		Ang	— 27	2.5		— 43	2.5		— 110	4	
18	30	Agw	+ 4	—		0	—		0	—	
		Agn	— 5	3	1.25	— 9	3	1.25	— 19	4.5	1.25
		Ang	— 33	3		— 52	3		— 130	4.5	
30	50	Agw	+ 5	—		0	—		0	—	
		Agn	— 6	3.5	1.25	— 11	3.5	1.25	— 22	5.5	1.25
		Ang	— 39	3.5		— 62	3.5		— 160	5.5	
50	80	Agw	+ 5	—		0	—		0	—	
		Agn	— 7	4	1.5	— 13	4	1.5	— 25	6.5	
		Ang	— 46	4		— 74	4		— 190	6.5	
80	120	Agw	+ 6	—		0	—		0	—	
		Agn	— 8	5	2	— 15	5	2	— 28	7.5	
		Ang	— 54	5		— 67	5		— 220	7.5	
120	180	Agw	+ 6	—		0	—		0	—	
		Agn	— 9	6	2.5	— 18	6	2.5	— 32	9	
		Ang	— 63	6		— 100	6		— 250	9	
180	250	Agw	+ 3	—		— 4	—		— 10	—	
		Agn	— 12	7	3.5	— 21	7	3.5	— 40	10	
		Ang	— 68	7		— 111	7		— 280	10	
250	315	Agw	+ 3	—		— 6	—		— 15	—	
		Agn	— 14	8	4	— 24	8	4	— 45	11.5	
		Ang	— 75	8		— 124	8		— 305	11.5	
315	400	Agw	+ 2	—		— 7	—		— 15	—	
		Agn	— 16	9	4.5	— 28	9	4.5	— 50	12.5	
		Ang	— 82	9		— 133	9		— 345	12.5	
400	500	Agw	+ 2	—		— 9	—		— 20	—	
		Agn	— 18	10	5	— 32	10	5	— 55	13.5	
		Ang	— 88	10		— 146	10		— 380	13.5	

(Continued)

TABLE 1 GAUGE ALLOWANCES AND MANUFACTURING TOLERANCES FOR OUTSIDE MEASUREMENTS — *Contd*

NOMINAL SIZE mm		GAUGE	TOLERANCE CLASS								
			js5			js6			js7		
OVER	UP TO AND INCLUDING	GAUGE	A	$+\frac{H_1}{2}$	$+\frac{H_P}{2}$	A	$+\frac{H_1}{2}$	$+\frac{H_P}{2}$	A	$+\frac{H_1}{2}$	$+\frac{H_P}{2}$
			A	$+\frac{H_1}{2}$	$+\frac{H_P}{2}$	A	$+\frac{H_1}{2}$	$+\frac{H_P}{2}$	A	$+\frac{H_1}{2}$	$+\frac{H_P}{2}$
—	3	Agw	+ 3	—		+ 4.5	—		+ 6.5	—	
		Agn	+ 1	0.6	0.4	+ 1.5	1	0.4	+ 3.5	1	0.4
		Ang	- 2	0.6		- 3	1		- 5	1	
3	6	Agw	+ 3.5	—		+ 5.5	—		+ 7.5	—	
		Agn	+ 1.5	0.75	0.5	+ 2	1.25	0.5	+ 4	1.25	0.5
		Ang	- 2.5	0.75		- 4	1.25		- 6	1.25	
6	10	Agw	+ 4	—		+ 6	—		+ 9	—	
		Agn	+ 2	0.75	0.5	+ 2.5	1.25	0.5	+ 5.5	1.25	0.5
		Ang	- 3	0.75		- 4.5	1.25		- 7.5	1.25	
10	18	Agw	+ 5.5	—		+ 7.5	—		+ 11	—	
		Agn	+ 2.5	1	0.6	+ 3	1.5	0.6	+ 6.5	1.5	0.6
		Ang	- 4	1		- 5.5	1.5		- 9	1.5	
18	30	Agw	+ 6.5	—		+ 9.5	—		+ 13.5	—	
		Agn	+ 3	1.25	0.75	+ 3.5	2	0.75	+ 7.5	2	0.75
		Ang	- 4.5	1.25		- 6.5	2		- 10.5	2	
30	50	Agw	+ 7.5	—		+ 11	—		+ 15.5	—	
		Agn	+ 3.5	1.25	0.75	+ 4.5	2	0.75	+ 9	2	0.75
		Ang	- 5.5	1.25		- 8	2		- 12.5	2	
50	80	Agw	+ 8.5	—		+ 12.5	—		+ 18	—	
		Agn	+ 4.5	1.5	1	+ 5.5	2.5	1	+ 11	2.5	1
		Ang	- 6.5	1.5		- 9.5	2.5		- 15	2.5	
80	120	Agw	+ 10.5	—		+ 15	—		+ 21.5	—	
		Agn	+ 5	2	1.25	+ 6	3	1.25	+ 12.5	3	1.25
		Ang	- 7.5	2		- 11	3		- 17.5	3	
120	180	Agw	+ 12	—		+ 16.5	—		+ 24	—	
		Agn	+ 6	2.5	1.75	+ 6.5	4	1.75	+ 14	4	1.75
		Ang	- 9	2.5		- 12.5	4		- 20	4	
180	250	Agw	+ 12	—		+ 17.5	—		+ 26	—	
		Agn	+ 6	3.5	2.25	+ 7.5	5	2.25	+ 16	5	2.25
		Ang	- 9	3.5		- 12.5	5		- 20	5	
250	315	Agw	+ 13	—		+ 19	—		+ 29	—	
		Agn	+ 6.5	4	3	+ 8	6	3	+ 18	6	3
		Ang	- 10	4		- 13	6		- 22	6	
315	400	Agw	+ 14	—		+ 20	—		+ 30.5	—	
		Agn	+ 6.5	4.5	3.5	+ 8	6.5	3.5	+ 18.5	6.5	3.5
		Ang	- 10	4.5		- 14	6.5		- 22.5	6.5	
400	500	Agw	+ 14.5	—		+ 22	—		+ 33.5	—	
		Agn	+ 6.5	5	4	+ 9	7.5	4	+ 20.5	7.5	4
		Ang	- 10.5	5		- 15	7.5		- 24.5	7.5	

(Continued)

TABLE 1 GAUGE ALLOWANCES AND MANUFACTURING TOLERANCES FOR OUTSIDE MEASUREMENTS — *Contd*

NOMINAL SIZE mm		GAUGE	TOLERANCE CLASS									
			k5			k6			k7			
OVER	UP TO AND INCLUDING		A	$\pm \frac{H_1}{2}$	$\pm \frac{H_P}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_P}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_P}{2}$	
—	3	Agw	+ 5	—		+ 7.5	—		+ 11.5	—		
		Agm	+ 3	0.6	0.4	+ 4.5	1	0.4	+ 8.5	1	0	0.4
		Ang	0	0.6		0	1	0	1	1	1	0.4
3	6	Agw	+ 7	—		+ 10.5	—		+ 14.5	—		
		Agm	+ 5	0.75	0.5	+ 7	1.25	0.5	+ 11	1.25	1.25	0.5
		Ang	+ 1	0.75		+ 1	1.25		+ 1	1.25	1.25	0.5
6	10	Agw	+ 8	—		+ 11.5	—		+ 17.5	—		
		Agm	+ 6	0.75	0.5	+ 8	1.25	0.5	+ 14	1.25	1.25	0.5
		Ang	+ 1	0.75		+ 1	1.25		+ 1	1.25	1.25	0.5
10	18	Agw	+ 10.5	—		+ 14	—		+ 21	—		
		Agm	+ 7.5	1	0.6	+ 9.5	1.5	0.6	+ 16.5	1.5	1.5	0.6
		Ang	+ 1	1		+ 1	1.5		+ 1	1.5	1.5	0.6
18	30	Agw	+ 13	—		+ 18	—		+ 26	—		
		Agm	+ 9.5	1.25	0.75	+ 12	2	0.75	+ 20	2	2	0.75
		Ang	+ 2	1.25		+ 2	2		+ 2	2	2	0.75
30	50	Agw	+ 15	—		+ 21	—		+ 30	—		
		Agm	+ 11	1.25	0.75	+ 14.5	2	0.75	+ 23.5	2	2	0.75
		Ang	+ 2	1.25		+ 2	2		+ 2	2	2	0.75
50	80	Agw	+ 17	—		+ 24	—		+ 35	—		
		Agm	+ 13	1.5	1	+ 17	2.5	1	+ 28	2.5	2.5	1
		Ang	+ 2	1.5		+ 2	2.5		+ 2	2.5	2.5	1
80	120	Agw	+ 21	—		+ 29	—		+ 42	—		
		Agm	+ 15.5	2	1.25	+ 20	3	1.25	+ 33	3	3	1.25
		Ang	+ 3	2		+ 3	3		+ 3	3	3	1.25
120	180	Agw	+ 24	—		+ 32	—		+ 47	—		
		Agm	+ 18	2.5	1.75	+ 22	4	1.75	+ 37	4	4	1.75
		Ang	+ 3	2.5		+ 3	4		+ 3	4	4	1.75
180	250	Agw	+ 26	—		+ 36	—		+ 53	—		
		Agm	+ 20	3.5	2.25	+ 26	5	2.25	+ 43	5	5	2.25
		Ang	+ 5	3.5		+ 6	5		+ 7	5	5	2.25
250	315	Agw	+ 28.5	—		+ 39	—		+ 59	—		
		Agm	+ 22	4	3	+ 28	6	3	+ 48	6	6	3
		Ang	+ 5.5	4		+ 7	6		+ 8	6	6	3
315	400	Agw	+ 30.5	—		+ 42	—		+ 63	—		
		Agm	+ 23	4.5	3.5	+ 30	6.5	3.5	+ 51	6.5	6.5	3.5
		Ang	+ 6.5	4.5		+ 8	6.5		+ 10	6.5	6.5	3.5
400	500	Agw	+ 33	—		+ 47	—		+ 70	—		
		Agm	+ 25	5	4	+ 34	7.5	4	+ 57	7.5	7.5	4
		Ang	+ 8	5		+ 10	7.5		+ 12	7.5	7.5	4

(Continued)

TABLE 1 GAUGE ALLOWANCES AND MANUFACTURING TOLERANCES FOR OUTSIDE MEASUREMENTS — *Contd*

NOMINAL SIZE mm		GAUGE	TOLERANCE CLASS							
			m5			m6			m7	
OVER	UP TO AND INCLUDING		A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$	A	$\pm \frac{H_1}{2}$
—	3	Agw Agn Ang	+ 7 + 5 + 2	— 0.6 0.6	0.4	+ 9.5 + 6.5 + 2	— 1 1	0.4	— — —	— 1 0.4
3	6	Agw Agn Ang	+ 10 + 8 + 4	— 0.75 0.75	0.5	+ 13.5 + 10 + 4	— 1.25 1.25	0.5	+ 17.5 + 14 + 4	— 1.25 0.5
6	10	Agw Agn Ang	+ 13 + 11 + 6	— 0.75 0.75	0.5	+ 16.5 + 13 + 6	— 1.25 1.25	0.5	+ 22.5 + 19 + 6	— 1.25 0.5
10	18	Agw Agn Ang	+ 16.5 + 13.5 + 7	— 1 1	0.6	+ 20 + 15.5 + 7	— 1.5 1.5	0.6	+ 27 + 22.5 + 7	— 1.5 0.6
18	30	Agw Agn Ang	+ 19 + 15.5 + 8	— 1.25 1.25	0.75	+ 24 + 18 + 8	— 2 2	0.75	+ 32 + 26 + 8	— 2 0.75
30	50	Agw Agn Ang	+ 22 + 18 + 9	— 1.25 1.25	0.75	+ 28 + 21.5 + 9	— 2 2	0.75	+ 37 + 30.5 + 9	— 2 0.75
50	80	Agw Agn Ang	+ 26 + 22 + 11	— 1.5 1.5	1	+ 33 + 26 + 11	— 2.5 2.5	1	+ 44 + 37 + 11	— 2.5 1
80	120	Agw Agn Ang	+ 31 + 25.5 + 13	— 2 2	1.25	+ 39 + 30 + 13	— 3 3	1.25	+ 52 + 43 + 13	— 3 1.25
120	180	Agw Agn Ang	+ 36 + 30 + 15	— 2.5 2.5	1.75	+ 44 + 34 + 15	— 4 4	1.75	+ 59 + 49 + 15	— 4 1.75
180	250	Agw Agn Ang	+ 39 + 33 + 18	— 3.5 3.5	2.25	+ 49 + 39 + 19	— 5 5	2.25	+ 66 + 56 + 20	— 5 2.25
250	315	Agw Agn Ang	+ 44.5 + 38 + 21.5	— 4 4	3	+ 55 + 44 + 23	— 6 6	3	+ 75 + 64 + 24	— 6 3
315	400	Agw Agn Ang	+ 47.5 + 40 + 23.5	— 4.5 4.5	3.5	+ 59 + 47 + 25	— 6.5 6.5	3.5	+ 80 + 68 + 27	— 6.5 3.5
400	500	Agw Agn Ang	+ 51 + 43 + 26	— 5 5	4	+ 65 + 52 + 28	— 7.5 7.5	4	+ 88 + 75 + 30	— 7.5 4

(Continued)

TABLE 1 GAUGE ALLOWANCES AND MANUFACTURING TOLERANCES FOR OUTSIDE MEASUREMENTS — *Contd*

NOMINAL SIZE mm		GAUGE	TOLERANCE CLASS								
			n5			n6			n7		
OVER	UP TO AND INCLUDING	A	$+\frac{H_1}{2}$	$+\frac{H_P}{2}$	A	$+\frac{H_1}{2}$	$+\frac{H_P}{2}$	A	$+\frac{H_1}{2}$	$+\frac{H_P}{2}$	
—	3	Agw	+ 9	—	+ 11.5	—	+ 15.5	—	+ 1.5	—	
		Agn	+ 7	0.6	0.4	+ 8.5	1	+ 12.5	1	+ 0.4	0.4
		Ang	+ 4	0.6		+ 4	1	+ 4	1		
3	6	Agw	+ 14	—	+ 17.5	—	+ 21.5	—	+ 2.5	—	
		Agn	+ 12	0.75	0.5	+ 14	1.25	+ 18	1.25	0.5	0.5
		Ang	+ 8	0.75		+ 8	1.25	+ 8	1.25		
6	10	Agw	+ 17	—	+ 20.5	—	+ 26.5	—	+ 3	—	
		Agn	+ 15	0.75	0.5	+ 17	1.25	+ 23	1.25	0.5	0.5
		Ang	+ 10	0.75		+ 10	1.25	+ 10	1.25		
10	18	Agw	+ 21.5	—	+ 25	—	+ 32	—	+ 3	—	
		Agn	+ 18.5	1	0.6	+ 20.5	1.5	+ 27.5	1.5	0.6	0.6
		Ang	+ 12	1		+ 12	1.5	+ 12	1.5		
18	30	Agw	+ 26	—	+ 31	—	+ 39	—	+ 3	—	
		Agn	+ 22.5	1.25	0.75	+ 25	2	+ 33	2	0.75	0.75
		Ang	+ 15	1.25		+ 15	2	+ 15	2		
30	50	Agw	+ 30	—	+ 36	—	+ 45	—	+ 4	—	
		Agn	+ 26	1.25	0.75	+ 29.5	2	+ 38.5	2	0.75	0.75
		Ang	+ 17	1.25		+ 17	2	+ 17	2		
50	80	Agw	+ 35	—	+ 42	—	+ 53	—	+ 5	—	
		Agn	+ 31	1.5	1	+ 35	2.5	+ 46	2.5	1	1
		Ang	+ 20	1.5		+ 20	2.5	+ 20	2.5		
80	120	Agw	+ 41	—	+ 49	—	+ 62	—	+ 6	—	
		Agn	+ 35.5	2	1.25	+ 40	3	+ 53	3	1.25	1.25
		Ang	+ 23	2		+ 23	3	+ 23	3		
120	180	Agw	+ 48	—	+ 56	—	+ 71	—	+ 7	—	
		Agn	+ 42	2.5	1.75	+ 46	4	+ 61	4	1.75	1.75
		Ang	+ 27	2.5		+ 27	4	+ 27	4		
180	250	Agw	+ 53	—	+ 63	—	+ 80	—	+ 8	—	
		Agn	+ 47	3.5	2.25	+ 53	5	+ 70	5	2.25	2.25
		Ang	+ 32	3.5		+ 33	5	+ 34	5		
250	315	Agw	+ 58.5	—	+ 69	—	+ 89	—	+ 8	—	
		Agn	+ 52	4	3	+ 58	6	+ 78	6	3	3
		Ang	+ 35.5	4		+ 37	6	+ 38	6		
315	400	Agw	+ 63.5	—	+ 75	—	+ 96	—	+ 9	—	
		Agn	+ 56	4.5	3.5	+ 63	6.5	+ 84	6.5	3.5	3.5
		Ang	+ 39.5	4.5		+ 41	6.5	+ 43	6.5		
400	500	Agw	+ 68	—	+ 82	—	+ 105	—	+ 10	—	
		Agn	+ 60	5	4	+ 69	7.5	+ 92	7.5	4	4
		Ang	+ 43	5		+ 45	7.5	+ 47	7.5		

(Continued)

TABLE 1 GAUGE ALLOWANCES AND MANUFACTURING TOLERANCES FOR OUTSIDE MEASUREMENTS — *Contd*

NOMINAL SIZE mm		GAUGE	TOLERANCE CLASS								
			P5			P6			P7		
OVER	UP TO AND INCLUDING	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_P}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_P}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_P}{2}$	
—	3	Agw	+ 11	—	+ 13.5	—	+ 17.5	—	+ 14.5	—	
		Agn	+ 9	0.6	+ 10.5	1	+ 14.5	1	+ 6	0.4	
		Ang	+ 6	0.6	+ 6	1	+ 6	1	+ 2	0.4	
3	6	Agw	+ 18	—	+ 21.5	—	+ 25.5	—	+ 22	—	
		Agn	+ 16	0.75	+ 18	1.25	+ 25	1.25	+ 12	0.5	
		Ang	+ 12	0.75	+ 12	1.25	+ 12	1.25	+ 2	0.5	
6	10	Agw	+ 22	—	+ 25.5	—	+ 3.5	—	+ 28	—	
		Agn	+ 20	0.75	+ 22	1.25	+ 28	1.25	+ 15	0.5	
		Ang	+ 15	0.75	+ 15	1.25	+ 15	1.25	+ 15	0.5	
10	18	Agw	+ 27.5	—	+ 31	—	+ 38	—	+ 33.5	—	
		Agn	+ 24.5	1	+ 26.5	1.5	+ 38	1.5	+ 18	0.6	
		Ang	+ 18	1	+ 18	1.5	+ 38	1.5	+ 18	0.6	
18	30	Agw	+ 33	—	+ 38	—	+ 46	—	+ 40	—	
		Agn	+ 29.5	1.25	+ 32	2	+ 46	2	+ 22	0.75	
		Ang	+ 22	1.25	+ 22	2	+ 40	2	+ 22	0.75	
30	50	Agw	+ 39	—	+ 45	—	+ 54	—	+ 47.5	—	
		Agn	+ 35	1.25	+ 38.5	2	+ 54	2	+ 26	0.75	
		Ang	+ 26	1.25	+ 26	2	+ 47.5	2	+ 26	0.75	
50	80	Agw	+ 47	—	+ 54	—	+ 65	—	+ 58	—	
		Agn	+ 43	1.5	+ 47	2.5	+ 65	2.5	+ 32	1	
		Ang	+ 32	1.5	+ 32	2.5	+ 58	2.5	+ 32	1	
80	120	Agw	+ 55	—	+ 63	—	+ 76	—	+ 67	—	
		Agn	+ 49.5	2	+ 54	3	+ 76	3	+ 37	1.25	
		Ang	+ 37	2	+ 37	3	+ 67	3	+ 37	1.25	
120	180	Agw	+ 64	—	+ 72	—	+ 87	—	+ 77	—	
		Agn	+ 58	2.5	+ 62	4	+ 87	4	+ 43	1.75	
		Ang	+ 43	2.5	+ 43	4	+ 77	4	+ 43	1.75	
180	250	Agw	+ 72	—	+ 82	—	+ 99	—	+ 89	—	
		Agn	+ 66	3.5	+ 72	5	+ 99	5	+ 53	2.25	
		Ang	+ 51	3.5	+ 52	5	+ 89	5	+ 53	2.25	
250	315	Agw	+ 80.5	—	+ 91	—	+ 111	—	+ 100	—	
		Agn	+ 74	4	+ 80	6	+ 111	6	+ 60	3	
		Ang	+ 57.5	4	+ 59	6	+ 100	6	+ 60	3	
315	400	Agw	+ 88.5	—	+ 100	—	+ 121	—	+ 109	—	
		Agn	+ 81	4.5	+ 88	6.5	+ 121	6.5	+ 68	3.5	
		Ang	+ 64.5	4.5	+ 66	6.5	+ 109	6.5	+ 68	3.5	
400	500	Agw	+ 96	—	+ 110	—	+ 133	—	+ 120	—	
		Agn	+ 88	5	+ 97	7.5	+ 133	7.5	+ 75	4	
		Ang	+ 71	5	+ 73	7.5	+ 120	7.5	+ 75	4	

(Continued)

TABLE 1 GAUGE ALLOWANCES AND MANUFACTURING TOLERANCES FOR OUTSIDE MEASUREMENTS — *Contd*

NOMINAL SIZE mm		GAUGE	TOLERANCE CLASS								
			r5			r6			r7		
OVER	UP TO AND INCLUDING	GAUGE	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$
—	3	Agw	+ 15	—		+ 17.5	—		+ 21.5	—	
		Agn	+ 13	0.6	0.4	+ 14.5	1	0.4	+ 18.5	1	0.4
		Ang	+ 10	0.6		+ 10	1		+ 10	1	
3	6	Agw	+ 21	—		+ 24.5	—		+ 28.5	—	
		Agn	+ 19	0.75	0.5	+ 21	1.25	0.5	+ 25	1.25	0.5
		Ang	+ 15	0.75		+ 15	1.25		+ 15	1.25	
6	10	Agw	+ 26	—		+ 29.5	—		+ 35.5	—	
		Agn	+ 24	0.75	0.5	+ 26	1.25	0.5	+ 32	1.25	0.5
		Ang	+ 19	0.75		+ 19	1.25		+ 19	1.25	
10	18	Agw	+ 32.5	—		+ 36	—		+ 43	—	
		Agn	+ 29.5	1	0.6	+ 31.5	1.5	0.6	+ 38.5	1.5	0.6
		Ang	+ 23	1		+ 23	1.5		+ 23	1.5	
18	30	Agw	+ 39	—		+ 44	—		+ 52	—	
		Agn	+ 35.5	1.25	0.75	+ 38	2	0.75	+ 46	2	0.75
		Ang	+ 28	1.25		+ 28	2		+ 28	2	
30	50	Agw	+ 47	—		+ 53	—		+ 62	—	
		Agn	+ 43	1.25	0.75	+ 46.5	2	0.75	+ 55.5	2	0.75
		Ang	+ 34	1.25		+ 34	2		+ 34	2	
50	65	Agw	+ 56	—		+ 63	—		+ 74	—	
		Agn	+ 52	1.5	1	+ 56	2.5	1	+ 67	2.5	1
		Ang	+ 41	1.5		+ 41	2.5		+ 41	2.5	
65	80	Agw	+ 58	—		+ 65	—		+ 76	—	
		Agn	+ 54	1.5	1	+ 58	2.5	1	+ 69	2.5	1
		Ang	+ 43	1.5		+ 43	2.5		+ 43	2.5	
80	100	Agw	+ 69	—		+ 77	—		+ 90	—	
		Agn	+ 63.5	2	1.25	+ 68	3	1.25	+ 81	3	1.25
		Ang	+ 51	2		+ 51	3		+ 51	3	
100	120	Agw	+ 72	—		+ 80	—		+ 93	—	
		Agn	+ 66.5	2	1.25	+ 71	3	1.25	+ 84	3	1.25
		Ang	+ 54	2		+ 54	3		+ 54	3	
120	140	Agw	+ 84	—		+ 92	—		+ 107	—	
		Agn	+ 78	2.5	1.75	+ 82	4	1.75	+ 97	4	1.75
		Ang	+ 63	2.5		+ 63	4		+ 63	4	
140	160	Agw	+ 86	—		+ 94	—		+ 109	—	
		Agn	+ 80	2.5	1.75	+ 84	4	1.75	+ 99	4	1.75
		Ang	+ 65	2.5		+ 65	4		+ 65	4	
160	180	Agw	+ 89	—		+ 97	—		+ 112	—	
		Agn	+ 83	2.5	1.75	+ 87	4	1.75	+ 102	4	1.75
		Ang	+ 68	2.5		+ 68	4		+ 68	4	
180	200	Agw	+ 99	—		+ 109	—		+ 126	—	
		Agn	+ 93	3.5	2.25	+ 99	5	2.25	+ 116	5	2.25
		Ang	+ 78	3.5		+ 79	5		+ 80	5	
200	225	Agw	+ 102	—		+ 112	—		+ 129	—	
		Agn	+ 96	3.5	2.25	+ 102	5	2.25	+ 119	5	2.25
		Ang	+ 81	3.5		+ 82	5		+ 83	5	
225	250	Agw	+ 106	—		+ 116	—		+ 133	—	
		Agn	+ 100	3.5	2.25	+ 106	5	2.25	+ 123	5	2.25
		Ang	+ 85	3.5		+ 86	5		+ 87	5	
250	280	Agw	+ 118.5	—		+ 129	—		+ 149	—	
		Agn	+ 112	4	3	+ 118	6	3	+ 138	6	3
		Ang	+ 95.5	4		+ 97	6		+ 98	6	
280	315	Agw	+ 122.5	—		+ 133	—		+ 153	—	
		Agn	+ 116	4	3	+ 122	6	3	+ 142	6	3
		Ang	+ 99.5	4		+ 101	6		+ 102	6	
315	355	Agw	+ 134.5	—		+ 146	—		+ 167	—	
		Agn	+ 127	4.5	3.5	+ 134	6.5	3.5	+ 155	6.5	3.5
		Ang	+ 110.5	4.5		+ 112	6.5		+ 114	6.5	
355	400	Agw	+ 140.5	—		+ 152	—		+ 173	—	
		Agn	+ 133	4.5	3.5	+ 140	6.5	3.5	+ 161	6.5	3.5
		Ang	+ 116.5	4.5		+ 118	6.5		+ 120	6.5	
400	450	Agw	+ 154	—		+ 168	—		+ 191	—	
		Agn	+ 146	5	4	+ 155	7.5	4	+ 178	7.5	4
		Ang	+ 129	5		+ 131	7.5		+ 133	7.5	
450	500	Agw	+ 160	—		+ 174	—		+ 197	—	
		Agn	+ 152	5	4	+ 161	7.5	4	+ 184	7.5	4
		Ang	+ 135	5		+ 137	7.5		+ 139	7.5	

(Continued)

TABLE 1 GAUGE ALLOWANCES AND MANUFACTURING TOLERANCES FOR OUTSIDE MEASUREMENTS — *Contd*

NOMINAL SIZE mm		GAUGE	TOLERANCE CLASS								
			s5			s6			s7		
OVER	UP TO AND INCLUDING		A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$
—	3	Agw Agn Ang	+ 19 + 17 + 14	— 0.6 0.6	0.4	+ 21.5 + 18.5 + 14	— 1 1	0.4	+ 25.5 + 22.5 + 14	— 1 1	0.4
3	6	Agw Agn Ang	+ 25 + 23 + 19	— 0.75 0.75	0.5	+ 28.5 + 25 + 19	1.25 1.25	0.5	+ 32.5 + 29 + 19	— 1.25 1.25	0.5
6	10	Agw Agn Ang	+ 30 + 28 + 23	— 0.75 0.75	0.5	+ 33.5 + 30 + 23	1.25 1.25	0.5	+ 39.5 + 36 + 23	— 1.25 1.25	0.5
10	18	Agw Agn Ang	+ 37.5 + 34.5 + 28	— 1 1	0.6	+ 41 + 36.5 + 28	1.5 1.5	0.6	+ 48 + 43.5 + 28	— 1.5 1.5	0.6
18	30	Agw Agn Ang	+ 46 + 42.5 + 35	— 1.25 1.25	0.75	+ 51 + 45 + 35	— 2 2	0.75	+ 59 + 53 + 35	— 2 2	0.75
30	50	Agw Agn Ang	+ 56 + 52 + 43	— 1.25 1.25	0.75	+ 62 + 55.5 + 43	— 2 2	0.75	+ 71 + 64.5 + 43	— 2 2	0.75
50	65	Agw Agn Ang	+ 68 + 64 + 53	— 1.5 1.5	1	+ 75 + 68 + 53	— 2.5 2.5	1	+ 86 + 79 + 53	— 2.5 2.5	1
65	80	Agw Agn Ang	+ 76 + 70 + 59	— 1.5 1.5	1	+ 81 + 74 + 59	— 2.5 2.5	1	+ 92 + 85 + 59	— 2.5 2.5	1
80	100	Agw Agn Ang	+ 89 + 83.5 + 71	— 2 2	1.25	+ 97 + 88 + 71	— 3 3	1.25	+ 110 + 101 + 71	— 3 3	1.25
100	120	Agw Agn Ang	+ 97 + 91.5 + 79	— 2 2	1.25	+ 105 + 96 + 79	— 3 3	1.25	+ 118 + 109 + 79	— 3 3	1.25
120	140	Agw Agn Ang	+ 113 + 107 + 92	— 2.5 2.5	1.75	+ 121 + 111 + 92	— 4 4	1.75	+ 13.6 + 12.6 + 9.2	— 4 4	1.75
140	160	Agw Agn Ang	+ 121 + 115 + 100	— 2.5 2.5	1.75	+ 129 + 119 + 100	— 4 4	1.75	+ 144 + 134 + 100	— 4 4	1.75
160	180	Agw Agn Ang	+ 129 + 123 + 108	— 2.5 2.5	1.75	+ 137 + 127 + 108	— 4 4	1.75	+ 152 + 142 + 108	— 4 4	1.75
180	200	Agw Agn Ang	+ 144 + 138 + 123	— 3.5 3.5	2.25	+ 154 + 144 + 124	— 5 5	2.25	+ 171 + 161 + 125	— 5 5	2.25
200	225	Agw Agn Ang	+ 152 + 146 + 131	— 3.5 3.5	2.25	+ 162 + 152 + 132	— 5 5	2.25	+ 179 + 169 + 133	— 5 5	2.25
225	250	Agw Agn Ang	+ 162 + 156 + 141	— 3.5 3.5	2.25	+ 172 + 162 + 142	— 5 5	2.25	+ 189 + 179 + 143	— 5 5	2.25
250	280	Agw Agn Ang	+ 182.5 + 176 + 159.5	— 4 4	3	+ 193 + 182 + 161	— 6 6	3	+ 21.5 + 20.2 + 16.2	— 6 6	3
280	315	Agw Agn Ang	+ 194.5 + 188 + 171.5	— 4 4	3	+ 205 + 194 + 173	— 6 6	3	+ 225 + 214 + 174	— 6 6	3
315	355	Agw Agn Ang	+ 216.5 + 209 + 192.5	— 4.5 4.5	3.5	+ 228 + 216 + 194	— 6.5 6.5	3.5	+ 24.9 + 23.7 + 19.6	— 6.5 6.5	3.5
355	400	Agw Agn Ang	+ 234.5 + 227 + 210.5	— 4.5 4.5	3.5	+ 24.6 + 23.4 + 21.2	— 6.5 6.5	3.5	+ 26.7 + 25.5 + 21.4	— 6.5 6.5	3.5
400	450	Agw Agn Ang	+ 260 + 252 + 235	— 5 5	4	+ 274 + 261 + 237	— 7.5 7.5	4	+ 297 + 284 + 239	— 7.5 7.5	4
450	500	Agw Agn Ang	+ 280 + 272 + 255	— 5 5	4	+ 294 + 281 + 257	— 7.5 7.5	4	+ 317 + 304 + 259	— 7.5 7.5	4

(Continued)

TABLE 1 GAUGE ALLOWANCES AND MANUFACTURING TOLERANCES FOR OUTSIDE MEASUREMENTS — *Contd*

NOMINAL SIZE mm		GAUGE	TOLERANCE CLASS											
			t5			t6			t7			u7		
OVER	UP TO AND INCLUDING		A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$	A	$\pm \frac{H_1}{2}$	$\pm \frac{H_p}{2}$
—	3	A _{gw} A _{gn} A _{ng}	—	—	—	—	—	—	—	—	—	+ 29.5	—	—
—	3	A _{gw} A _{gn} A _{ng}	—	—	—	—	—	—	—	—	—	+ 26.5	—	—
—	3	A _{gw} A _{gn} A _{ng}	—	—	—	—	—	—	—	—	—	+ 18	—	0.4
3	6	A _{gw} A _{gn} A _{ng}	—	—	—	—	—	—	—	—	—	+ 36.5	—	—
3	6	A _{gw} A _{gn} A _{ng}	—	—	—	—	—	—	—	—	—	+ 33	—	—
3	6	A _{gw} A _{gn} A _{ng}	—	—	—	—	—	—	—	—	—	+ 23	—	—
6	10	A _{gw} A _{gn} A _{ng}	—	—	—	—	—	—	—	—	—	+ 44.5	—	—
6	10	A _{gw} A _{gn} A _{ng}	—	—	—	—	—	—	—	—	—	+ 41	—	—
6	10	A _{gw} A _{gn} A _{ng}	—	—	—	—	—	—	—	—	—	+ 28	—	0.5
10	18	A _{gw} A _{gn} A _{ng}	—	—	—	—	—	—	—	—	—	+ 53	—	—
10	18	A _{gw} A _{gn} A _{ng}	—	—	—	—	—	—	—	—	—	+ 48.5	—	—
10	18	A _{gw} A _{gn} A _{ng}	—	—	—	—	—	—	—	—	—	+ 33	—	0.6
18	24	A _{gw} A _{gn} A _{ng}	—	—	—	—	—	—	—	—	—	+ 65	—	—
18	24	A _{gw} A _{gn} A _{ng}	—	—	—	—	—	—	—	—	—	+ 59	—	2
18	24	A _{gw} A _{gn} A _{ng}	—	—	—	—	—	—	—	—	—	+ 41	—	0.75
24	30	A _{gw} A _{gn} A _{ng}	+ 52 + 48.5 + 41	— 1.25 1.25	— 0.75	+ 57 + 51 + 41	— 2 2	0.75	+ 65 + 59 + 41	— 2 2	0.75	+ 72 + 66 + 48	— 2 2	0.75
24	30	A _{gw} A _{gn} A _{ng}	+ 61 + 57 + 48	— 1.25 1.25	— 0.75	+ 67 + 60.5 + 48	— 2 2	0.75	+ 76 + 69.5 + 48	— 2 2	0.75	+ 88 + 81.5 + 60	— 2 2	0.75
30	40	A _{gw} A _{gn} A _{ng}	+ 81 + 77 + 66	— 1.25 1.25	— 0.75	+ 88 + 81 + 66	— 2.5 2.5	1	+ 99 + 92 + 66	— 2.5 2.5	1	+ 120 + 113 + 87	— 2.5 2.5	1
40	50	A _{gw} A _{gn} A _{ng}	+ 67 + 63 + 54	— 1.25 1.25	— 0.75	+ 73 + 66.5 + 54	— 2 2	0.75	+ 82 + 75.5 + 54	— 2 2	0.75	+ 98 + 91.5 + 70	— 2 2	0.75
50	65	A _{gw} A _{gn} A _{ng}	+ 81 + 77 + 66	— 1.5 1.5	— 1	+ 88 + 81 + 66	— 2.5 2.5	1	+ 99 + 92 + 66	— 2.5 2.5	1	+ 120 + 113 + 87	— 2.5 2.5	1
65	80	A _{gw} A _{gn} A _{ng}	+ 90 + 86 + 75	— 1.5 1.5	— 1	+ 97 + 90 + 75	— 2.5 2.5	1	+ 108 + 101 + 75	— 2.5 2.5	1	+ 135 + 128 + 102	— 2.5 2.5	1
80	100	A _{gw} A _{gn} A _{ng}	+ 109 + 103.5 + 91	— 2 2	— 1.25	+ 117 + 108 + 91	— 3 3	1.25	+ 130 + 121 + 91	— 3 3	1.25	+ 163 + 154 + 124	— 3 3	1.25
100	120	A _{gw} A _{gn} A _{ng}	+ 122 + 116.5 + 104	— 2 2	— 1.25	+ 130 + 121 + 104	— 3 3	1.25	+ 143 + 134 + 104	— 3 3	1.25	+ 183 + 174 + 144	— 3 3	1.25
120	140	A _{gw} A _{gn} A _{ng}	+ 143 + 137 + 122	— 2.5 2.5	— 1.75	+ 151 + 141 + 122	— 4 4	1.75	+ 166 + 156 + 122	— 4 4	1.75	+ 214 + 204 + 170	— 4 4	1.75
140	160	A _{gw} A _{gn} A _{ng}	+ 155 + 149 + 134	— 2.5 2.5	— 1.75	+ 163 + 153 + 134	— 4 4	1.75	+ 178 + 168 + 134	— 4 4	1.75	+ 234 + 224 + 190	— 4 4	1.75
160	180	A _{gw} A _{gn} A _{ng}	+ 167 + 161 + 146	— 2.5 2.5	— 1.75	+ 175 + 165 + 146	— 4 4	1.75	+ 190 + 180 + 146	— 4 4	1.75	+ 254 + 244 + 210	— 4 4	1.75
180	200	A _{gw} A _{gn} A _{ng}	+ 188 + 182 + 167	— 3.5 3.5	— 2.25	+ 198 + 188 + 168	— 5 5	2.25	+ 215 + 205 + 169	— 5 5	2.25	+ 285 + 275 + 239	— 5 5	2.25
200	225	A _{gw} A _{gn} A _{ng}	+ 202 + 196 + 181	— 3.5 3.5	— 2.25	+ 212 + 202 + 182	— 5 5	2.25	+ 229 + 219 + 183	— 5 5	2.25	+ 307 + 297 + 261	— 5 5	2.25
225	250	A _{gw} A _{gn} A _{ng}	+ 218 + 212 + 197	— 3.5 3.5	— 2.25	+ 228 + 218 + 198	— 5 5	2.25	+ 245 + 235 + 199	— 5 5	2.25	+ 333 + 323 + 287	— 5 5	2.25
250	280	A _{gw} A _{gn} A _{ng}	+ 242.5 + 236 + 219.5	— 4 4	— 3	+ 253 + 242 + 221	— 6 6	3	+ 273 + 262 + 222	— 6 6	3	+ 370 + 359 + 319	— 6 6	3
280	315	A _{gw} A _{gn} A _{ng}	+ 264.5 + 258 + 241.5	— 4 4	— 3	+ 275 + 264 + 243	— 6 6	3	+ 295 + 284 + 244	— 6 6	3	+ 405 + 394 + 354	— 6 6	3
315	355	A _{gw} A _{gn} A _{ng}	+ 294.5 + 287 + 270.5	— 4.5 4.5	— 3.5	+ 306 + 294 + 272	— 6.5 6.5	3.5	+ 327 + 315 + 274	— 6.5 6.5	3.5	+ 449 + 437 + 396	— 6.5 6.5	3.5
355	400	A _{gw} A _{gn} A _{ng}	+ 320.5 + 313 + 296.5	— 4.5 4.5	— 3.5	+ 332 + 320 + 298	— 6.5 6.5	3.5	+ 353 + 341 + 300	— 6.5 6.5	3.5	+ 494 + 482 + 441	— 6.5 6.5	3.5
400	450	A _{gw} A _{gn} A _{ng}	+ 358 + 350 + 333	— 5 5	— 4	+ 372 + 359 + 335	— 7.5 7.5	4	+ 395 + 382 + 337	— 7.5 7.5	4	+ 555 + 542 + 497	— 7.5 7.5	4
450	500	A _{gw} A _{gn} A _{ng}	+ 388 + 380 + 363	— 5 5	— 4	+ 402 + 389 + 365	— 7.5 7.5	4	+ 425 + 412 + 367	— 7.5 7.5	4	+ 605 + 592 + 547	— 7.5 7.5	4

EXPLANATORY NOTE

IS : 3455-1971 'Gauging practice for plain workpieces (*first revision*)' specifies the dimensions for different types of plug, ring and gap gauges. This standard gives in a tabulated form the calculated values of the gauge allowances and manufacturing tolerances for snap gauges, ring gauges and reference discs for gap gauges of nominal sizes up to 500 mm for selected ISO-tolerance zones as recommended in ISO/R 1829-1970 'Selection of tolerance zones for general purposes'. This standard supplements the details given in IS : 3455-1971. For individual gauges reference should be made to the following standards:

- a) IS : 3485-1972 'GO' plain ring gauges (size range 1 to 315 mm) (*first revision*)
- b) IS : 6633-1972 'NO GO' plain ring gauges (size range 1 to 315 mm)
- c) IS : 7018-1973 Technical supply conditions for gauges

In the preparation of this standard assistance has been derived from DIN 7163-1966 'Arbeitsrachenlehren und Prüflehren für ISO-Passmasse von 1 bis 500 mm Nennmass Lehrenmasse und Herstelltoleranzen (Workshop snap gauges and reference gauges for ISO-fit sizes from 1 up to 500 mm nominal size; deviations and tolerances for gauges)' issued by DIN Deutsches Institut für Normung.